HYDROPYROLYSIS OF COAL-DERIVED LIQUIDS AND OTHER HEAVY OILS AND SOLIDS. J. Shabtai, A. G. Oblad, Department of Mining and Fuels Engineering, University of Utah, Salt Lake City, UT 84112.

A new thermal hydrocracking process for upgrading of heavy hydrocarbon oils and solids, e.g. coal liquids, tar sand bitumens, and petroleum residues, has been developed. In a typical example, a heavy coal liquid, which contained about 45% by weight of components boiling >500°C, was hydropyrolyzed at 525°C and a hydrogen pressure of 1500 psig to yield 74% by weight of a light liquid product distilling between 60 - 380°C. The mechanism of some of the important hydropyrolytic reactions involved in the process was elucidated by parallel studies with model compounds, e.g. C_{10} - C_{16} n-paraffins, condensed arenes, and polycyclic naphthenes.